



# 35kV AL 100% TRXLPE One-Third (Based on Short Circuit) HI-DRI-PLUS® Renewable (Solar or Wind)

Moisture Blocked Aluminum Conductors. TRXLP Insulation. One-Third Concentric Neutrals. XLPE Jacket



Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

- Conductor:** Moisture Blocked 1350 H16/H26 Aluminum, Class B Compressed or Compressed Unilay Stranded
- Strand Shield:** Semi-conducting Crosslinked Polyethylene
- Insulation:** Tree Retardant Crosslinked Polyethylene (TRXLPE)
- Insulation Shield:** Strippable Semi-conducting Crosslinked Polyethylene
- Concentric Neutral:** Annealed Copper Wires Helically Applied One-Third Concentric Neutral
- Overall Jacket & Water Block:** HI-DRI-PLUS® Water Swellable Powder Black Crosslinked Polyethylene (XLPE) with Red Extruded Stripes

## APPLICATIONS AND FEATURES:

- Predominately used for renewable projects with wind or solar applications.
- Suitable for use in wet or dry locations, direct burial, underground ducts, and exposure to direct sunlight.
- To be used at conductor temperature not to exceed 105°C normal operation.
- UL listed MV-105
- The concentric neutral counts and sizes listed in Table 1 are based on the ICEA P-45-482 short circuit calculation of an MV-90 design. The short circuit value in Table 1 is calculated using a higher thermal limit of a crosslinked XLPE jacket MV-105 design.

## SPECIFICATIONS:

- ASTM B231 Standard Specification for Concentric-Lay-Stranded Aluminum 1350 Conductors
- ASTM B609 Standard Specification for Aluminum 1350 Round Wire, Annealed and Intermediate Tempers, for Electrical Purposes
- UL 1072 Medium-Voltage Power Cables
- ICEA S-94-649 Standard for Concentric Neutral Cables Rated 5 - 46kV
- AEIC CS-8 Specification for extruded dielectric shielded power cables rated for 5 through 46KV (Qualification Test Requirements)
- Made in America: Compliant with both Buy American and Buy America Act (BAA) requirements per 49 U.S.C. § 5323(j) and the Federal Transit Administration Buy America requirements per 49 C.F.R. part 661





**SAMPLE PRINT LEGEND:**

{SQFTG} SOUTHWIRE(R) HI-DRI-PLUS(R) (UL) XXX KCMIL AL 345 MILS TRXLPE TYPE MV-105 35KV 100% INSUL LEVEL --  
(NESC) -- SOUTHWIRE {MMM} {YYYY} NON-CONDUCTING JACKET





**Table 1 – Weights and Measurements**

| Stock Number | Cond. Size | Diameter Over Conductor | Diameter Over Insulation | Insul. Thickness | Diameter Over Insulation Shield | Concentric Neutral | Neutral DC Resistance 25°C | Jacket Thickness | Approx. OD | Approx. Weight | Min Bending Radius | Max Pull Tension |
|--------------|------------|-------------------------|--------------------------|------------------|---------------------------------|--------------------|----------------------------|------------------|------------|----------------|--------------------|------------------|
|              | AWG/Kcmil  | inch                    | inch                     | mil              | inch                            | No. x AWG          | Ω /1000ft                  | mil              | inch       | lb / 1000ft    | inch               | lb               |
| 459248       | 500 (37)   | 0.789                   | 1.519                    | 345              | 1.629                           | 19x14              | 0.138                      | 75               | 1.911      | 1716           | 15.3               | 3000             |

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

\* Pulling tension based on pulling eye directly connected to conductor

TBA stock codes are estimations only and actual product may vary. Please wait until a stock code is assigned to purchase connectors and/or fittings.

**Table 2 – Electrical and Engineering Data**

| Cond. Size | DC Resistance @ 25°C | AC Resistance @ 90°C | Capacitive Reactance @ 60Hz | Inductive Reactance @ 60Hz | Charging Current | Dielectric Loss | Zero Sequence Impedance | Positive Sequence Impedance | Short Circuit Current @ 30 Cycle | Allowable Ampacity in Duct 90°C | Allowable Ampacity Directly Buried 90°C |
|------------|----------------------|----------------------|-----------------------------|----------------------------|------------------|-----------------|-------------------------|-----------------------------|----------------------------------|---------------------------------|-----------------------------------------|
| AWG/Kcmil  | Ω/1000ft             | Ω/1000ft             | MΩ*1000ft                   | Ω/1000ft                   | A/1000ft         | W/1000ft        | Ω/1000ft                | Ω/1000ft                    | Amp                              | Amp                             | Amp                                     |
| 500 (37)   | 0.035                | 0.046                | 0.041                       | 0.042                      | 0.496            | 3.0             | 0.101 + j0.829          | 0.047 + j0.016              | 9828                             | 380                             | 445                                     |

\*Ampacities for Direct Buried are based on ICEA P-117-734-2016 Single-Conductor Solid Dielectric 15-35kV. Single Circuit Flat Direct Buried Figure 3

\*Ampacities for Duct are based on ICEA P-117-734-2016 for Single-Conductor Solid Dielectric 15-35kV. Single Circuit Trefoil Conduit Figure 7.

\*Sequence Impedance values are based on Rho Earth Resistivity: 100 Ohm-Meter/1000ft.

**Table 3 – Weights and Measurements (Metric)**

| Stock Number | Cond. Size | Diameter Over Conductor | Diameter Over Insulation | Insul. Thickness | Diameter Over Insulation Shield | Concentric Neutral | Neutral DC Resistance 25°C | Jacket Thickness | Approx. OD | Approx. Weight | Min Bending Radius | Max Pull Tension |
|--------------|------------|-------------------------|--------------------------|------------------|---------------------------------|--------------------|----------------------------|------------------|------------|----------------|--------------------|------------------|
|              | AWG/Kcmil  | mm                      | mm                       | mm               | mm                              | No. x AWG          | Ω/km                       | mm               | mm         | kg/km          | mm                 | newton           |
| 459248       | 500 (37)   | 20.04                   | 38.58                    | 8.76             | 41.38                           | 19x14              | 0.45                       | 1.91             | 48.54      | 2554           | 388.62             | 13350            |

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

\* Pulling tension based on pulling eye directly connected to conductor

TBA stock codes are estimations only and actual product may vary. Please wait until a stock code is assigned to purchase connectors and/or fittings.

**Table 4 – Electrical and Engineering Data (Metric)**

| Cond. Size | DC Resistance @ 25°C | AC Resistance @ 90°C | Capacitive Reactance @ 60Hz | Inductive Reactance @ 60Hz | Charging Current | Dielectric Loss | Zero Sequence Impedance* | Positive Sequence Impedance* | Short Circuit Current @ 30 Cycle | Allowable Ampacity in Duct 90°C | Allowable Ampacity Directly Buried 90°C |
|------------|----------------------|----------------------|-----------------------------|----------------------------|------------------|-----------------|--------------------------|------------------------------|----------------------------------|---------------------------------|-----------------------------------------|
| AWG/Kcmil  | Ω/km                 | Ω/km                 | MΩ*km                       | Ω/km                       | A/km             | W/km            | Ω/1000ft                 | Ω/1000ft                     | Amp                              | Amp                             | Amp                                     |
| 500 (37)   | 0.1148               | 0.15                 | 0.0125                      | 0.1378                     | 1.627            | 9.8425          | 0.101 + j0.829           | 0.047 + j0.016               | 9828                             | 380                             | 445                                     |

\*Ampacities for Direct Buried are based on ICEA P-117-734-2016 Single-Conductor Solid Dielectric 15-35kV. Single Circuit Flat Direct Buried Figure 3

\*Ampacities for Duct are based on ICEA P-117-734-2016 for Single-Conductor Solid Dielectric 15-35kV. Single Circuit Trefoil Conduit Figure 7.

\*Sequence Impedance values are based on Rho Earth Resistivity: 100 Ohm-Meter/1000ft.

Concentric Neutral  
Calculator

